Using Taxonomy to Facilitate Research Collaboration and Discovery

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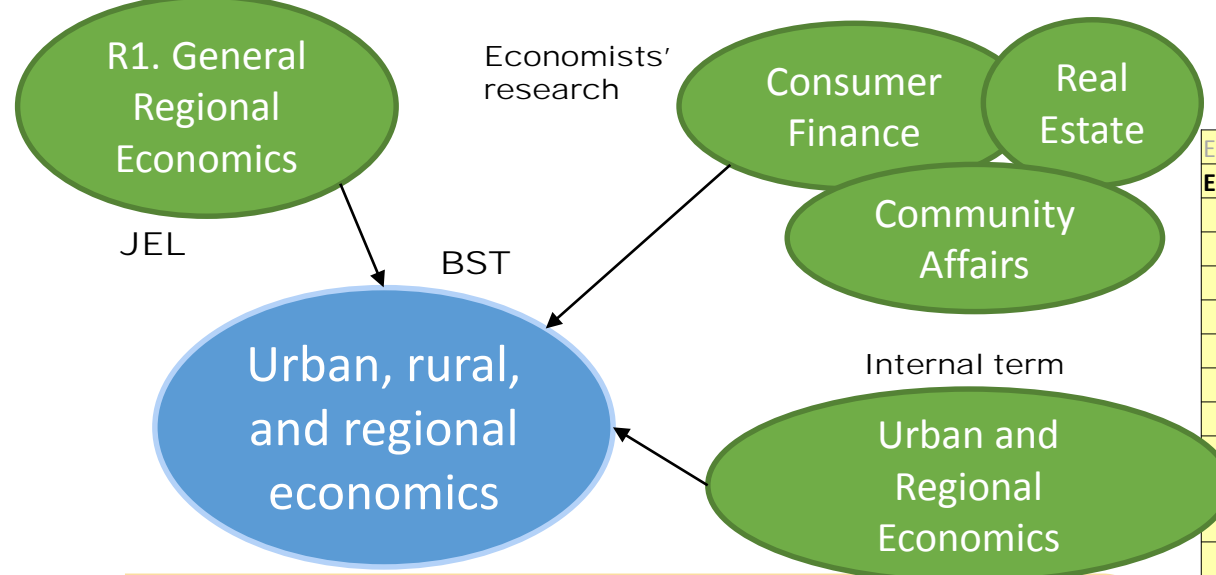Research Library, Board of Governors of the Federal Reserve System, United States

INTRODUCTION

The Research Library at the Board of Governors of the Federal Reserve developed the **Board Subject Taxonomy** (BST) to facilitate sharing, collaboration, and discovery among information systems. To achieve this goal, Library staff developed several tools that enable the taxonomy to bridge across systems and bring together data, researchers, and publications that were previously isolated from each other.

TIMELINE

2012
- The project was initiated to provide a uniform list of top terms to describe Board research.
- Initial work involved focus groups consisting of researchers and policy analysts, surveys, and evaluation of existing vocabularies in use at the Board.

R1. General Regional Economics

Economists' research

Consumer Finance

Real Estate

Community Affairs

JEL

BST

Urban, rural, and regional economics

Internal term

Urban and Regional Economics

Economic History	
Economic Sectors	
sub-terms:	Agriculture
	Construction
	Forestry
	Education
	Energy
	Health
	Manufacturing
	Natural Resources
	Real Estate
	Retail
	Service Industries
	Technology
	Transportation
	Utilities
Environmental Economics	

2013
- Work included merging Journal of Economic Literature (JEL) classification with internal vocabularies and mining keywords and tags associated with economists' research.
- A spreadsheet version of the Board Subject Taxonomy was released in April.

Economic and industrial sectors
Used For
Economic sectors
Broader Term
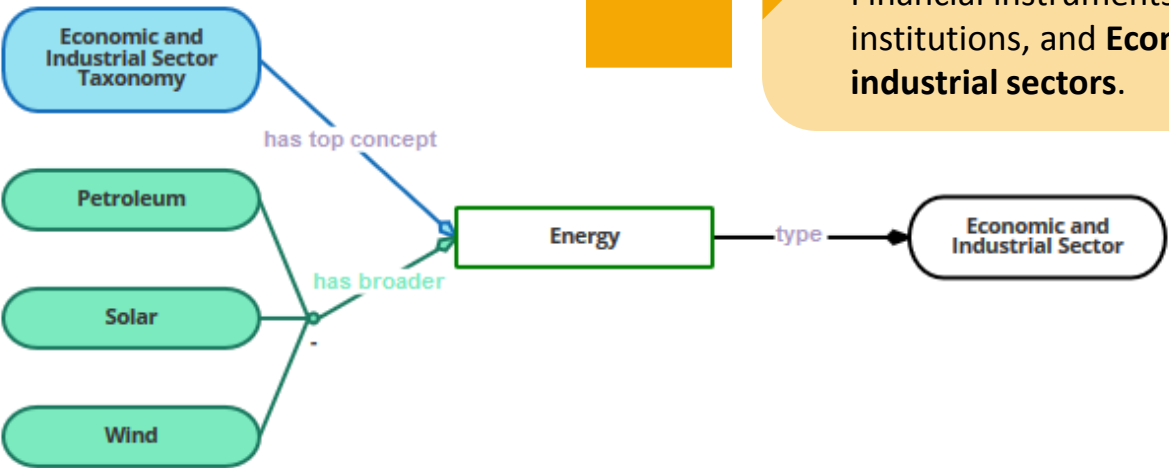Industrial organization
Narrower Term
Agriculture
Air transportation
Appliances and consumer durables
Automobiles and transportation equipment
Business equipment
Chemicals and biotechnology
Computer software and internet services

2014
- Subject terms began to be applied to Board economists' working papers.
- Shifted the management from a spreadsheet to a thesaurus management tool.

2016
- Transformed the thesaurus from a single hierarchy to a faceted taxonomy.
- The BST comprises four facets: Topics, Financial instruments, Financial institutions, and **Economic and industrial sectors**.

Economic and Industrial Sector Taxonomy
has top concept
Petroleum
Solar
Wind
has broader
Energy
type
Economic and Industrial Sector

EXPLOITING THE POWER OF ROBUST METADATA ACROSS OUR PRODUCTS

DataFinder

DataFinder - Board by Board Subject Taxonomy   Return to DataFinder - Board page

Consumer economics and finance
Includes Consumer economics, Consumer finance, and Consumer credit.

Consumption, saving, production, employment, and investment
Covers GDP, consumption expenditures; investment in nonresidential structures and producers' durable equipment; changes in business inventories.

Data collection, modeling, and quantitative methods
Covers Data mapping, Econometric modeling, Forecasts, Econometrics, Indices, Mathematical and quantitative methods.

Federal Reserve Board and Federal Reserve System

Market structure and competition
Includes Economics of monopoly; oligopoly and other forms of market imperfection; auctions, rationing and licensing, value theory, market design, market structure, and pricing behavior.

Monetary policy
Covers Inflation and Policy rates (Discount; Federal funds; Prime interest).

Money and interest rates
Covers issues and data pertaining to monetary economics, including Cash; Interest rates; Money supply; Policy rates.

Industrial organization
Includes Economic and industrial sectors: Agriculture; Automobiles; Construction; Energy; Financial sector; Manufacturing: Petroleum (gas, oil); Transportation.

Board's acquired data asset discovery tool. Metadata records generally describe data assets at the contract, product, or series level.

OneBoard Research

Subject
- **Monetary policy** (897)
- **International finance and economics** (634)
- **Financial Markets** (510)
- **Banks, credit unions, and other financial institutions** (433)
- **Business fluctuations and cycles** (420)
- **Econometrics** (361)
- **Corporate finance and governance** (307)
- **Inflation** (288)
- **Econometric modeling** (272)
- **Wages and compensation** (257)

OneBoard — Increasing access to Board research and data

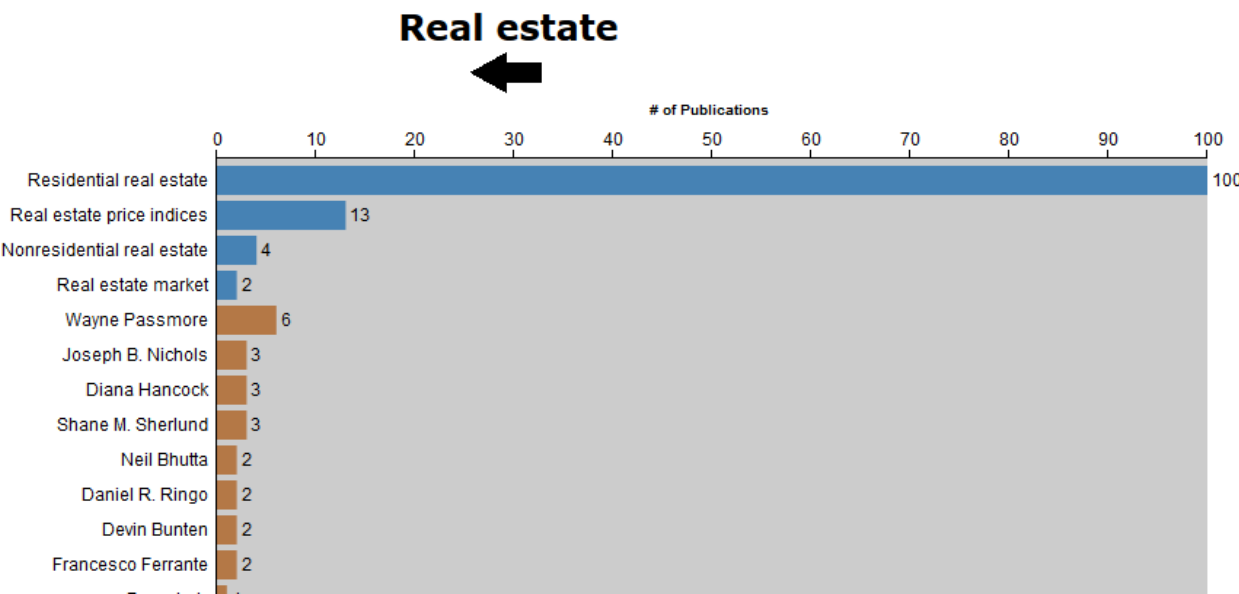|	
Author	Decker, Ryan Flaaen, Aaron Tito, Maria D.
Title	Unraveling the Oil Conundrum : Productivity Improvements and Cost Declines in the ...
Date	2016
Series	FEDS Notes ; 2016-03-22
Subject	Petroleum
	Subject terms come from the Board Subject Taxonomy
Publisher	Board of Governors of the Federal Reserve System (U.S.)
Cite as	Decker, Ryan A., Aaron Flaaen, and Maria D. Tito (2016). "Unraveling the Oil Conundrum: https://doi.org/10.17016/2380-7172.1736

Board's institutional repository. Uses taxonomy to describe subject of contents

Board Expert Finder

Real estate
# of Publications
Residential real estate — 100
Real estate price indices — 13
Nonresidential real estate — 4
Real estate market — 2
Wayne Passmore — 6
Joseph B. Nichols — 3
Diana Hancock — 3
Shane M. Sherlund — 3
Neil Bhutta — 2
Daniel R. Ringo — 2
Devin Bunten — 2
Francesco Ferrante — 2

Aggregated data from repository to create hierarchical bar graph with same structure as taxonomy

Cagetti, Marco
- Pence, Karen M. (0.779) (details)
- Smith, Paul A. (0.657) (details)
- Moore, Kevin B. (0.647) (details)
- Li, Geng (0.563) (details)
- Engen, Eric M. (0.552) (details)
- Elliehausen, Gregory E. (0.533) (details)
- Johnson, Kathleen W. (0.483) (details)
- Palumbo, Michael G. (0.472) (details)
- Gorin, Daniel (0.423) (details)
- Bricker, Jesse (0.409) (details)

Economist Similarity Index

Parsed publication data is used to determine how similar authors' outputs are based on subject

$$s_{i,j} = \frac{\sum_{f=1}^{F}\left(x_i^f \cdot x_j^f\right)}{\left(\sum_{f=1}^{F}\left(x_i^f\right)^2\right)^{1/2} \cdot \left(\sum_{f=1}^{F}\left(x_j^f\right)^2\right)^{1/2}}$$

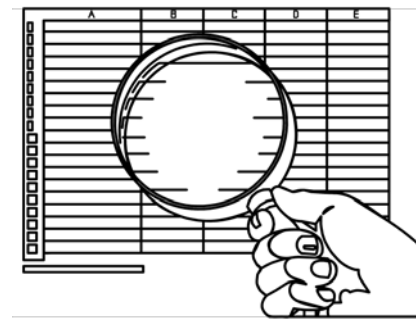## USER CASE STUDY – Vocabulary for Reserve Bank Operations Staff

Where we started
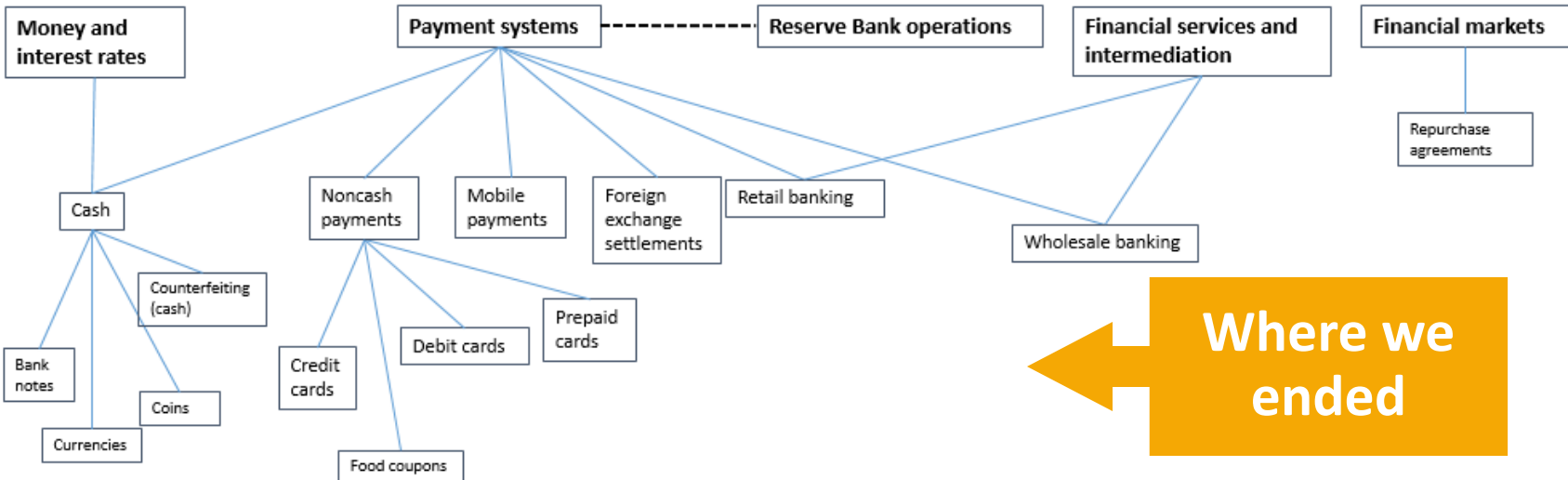
Payment systems — Related terms — Reserve bank operations   Money and interest rates

search

Iterations of interviews, intranet review, document scouring – term list creation, testing, and retesting

Money and interest rates — Payment systems — — — Reserve Bank operations   Financial services and intermediation   Financial markets

Cash — Noncash payments — Mobile payments — Foreign exchange settlements — Retail banking — Repurchase agreements

Bank notes — Counterfeiting (cash) — Credit cards — Debit cards — Prepaid cards — Wholesale banking

Coins — Currencies — Food coupons

Where we ended

NEXT STEPS

- Expand the taxonomy, to include coverage for collected data, technical expertise.
- Develop a diversity/economic inclusion
- Use text analytics to support auto-tagging and identify gaps in coverage.
- Open up OneBoard Research, the Board's research repository, on the Fed's public website.
- Transform the taxonomy fully into RDF for deployment in enterprise-level data inventory.
- Market and brand the taxonomy to raise awareness of it as a support tool that aids in search and discovery.
- Provide the Taxonomy as linked open data.

CONTACT INFORMATION

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